STEVAL-IEM003V1

Low voltage 3-phase power stage for electric traction with MC connector

Data brief



STEVAL-IEM003V1

Features

- BUS voltage up to 48 V and up to 3 kW
- 3-phase full bridge inverter topology
- Efficient power dissipation with power MOSFETs mounted on a dedicated IMS layer
- Motor current feedback via ICS
- Protection features:
  - bus overcurrent detection
  - bus voltage monitoring
  - power stage temperature sensing
- RoHS compliant

Description

The STEVAL-IEM003V1 demonstration board is designed to drive a low voltage/high current 3-phase brushless synchronous or asynchronous motor up to 3 kW. Typical uses for the system include battery-powered traction system applications or high-power tools.

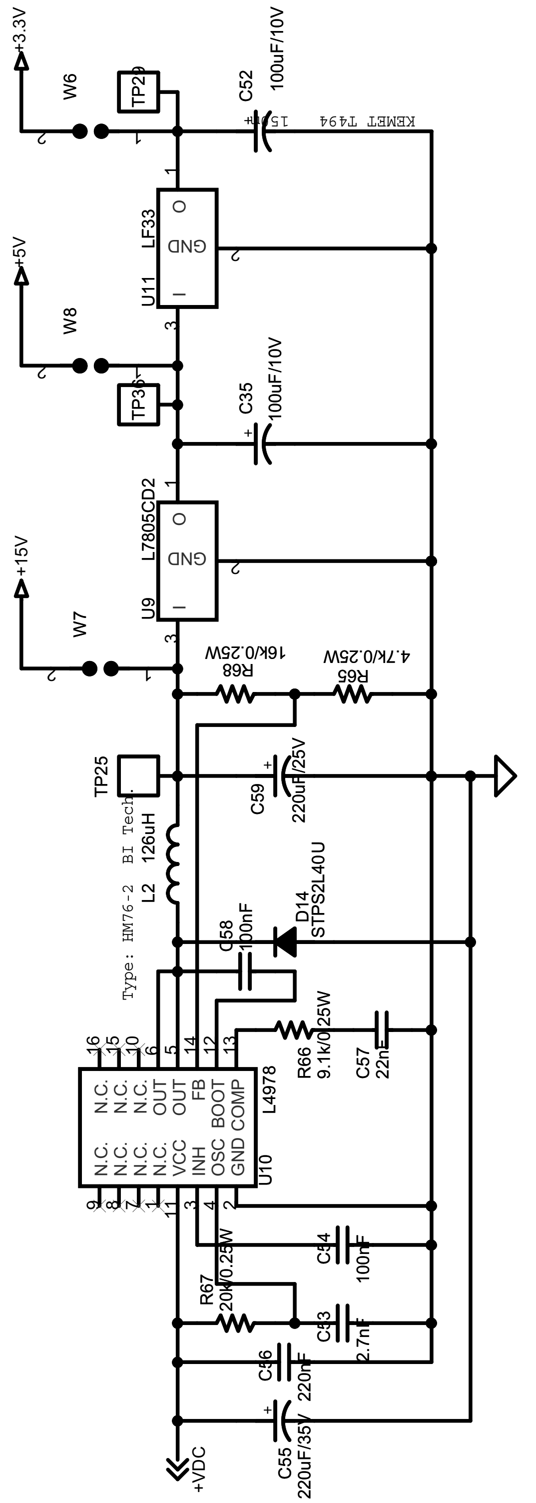
The demonstration board is composed of two stacked boards. The top layer is a power board where the power devices are mounted on a dedicate IMS layer, and the bottom board includes the gate driving, current sensing and power supply sections.

The STEVAL-IEM003V1 provides a compact solution and efficient power dissipation thanks to the power MOSFET used.

Thanks to the on-board MC connector, the STEVAL-IEM003V1 can be easily interfaced with any ST MCU control board equipped with the same type of MC connector.

1 Schematic diagrams

Figure 1. Power supply section circuit schematic



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Figure 2. Gate driving, sensing and power supply section schematics

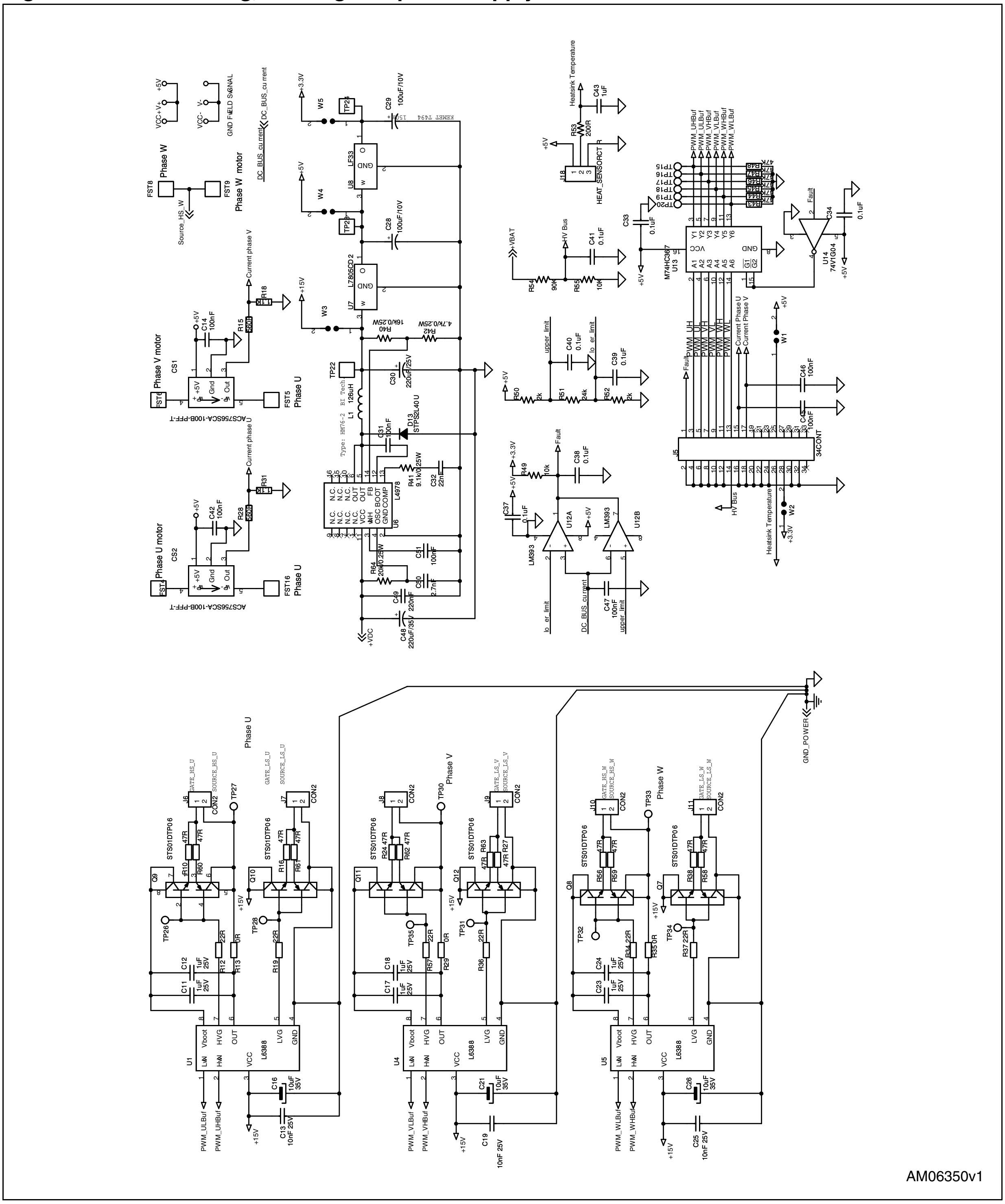
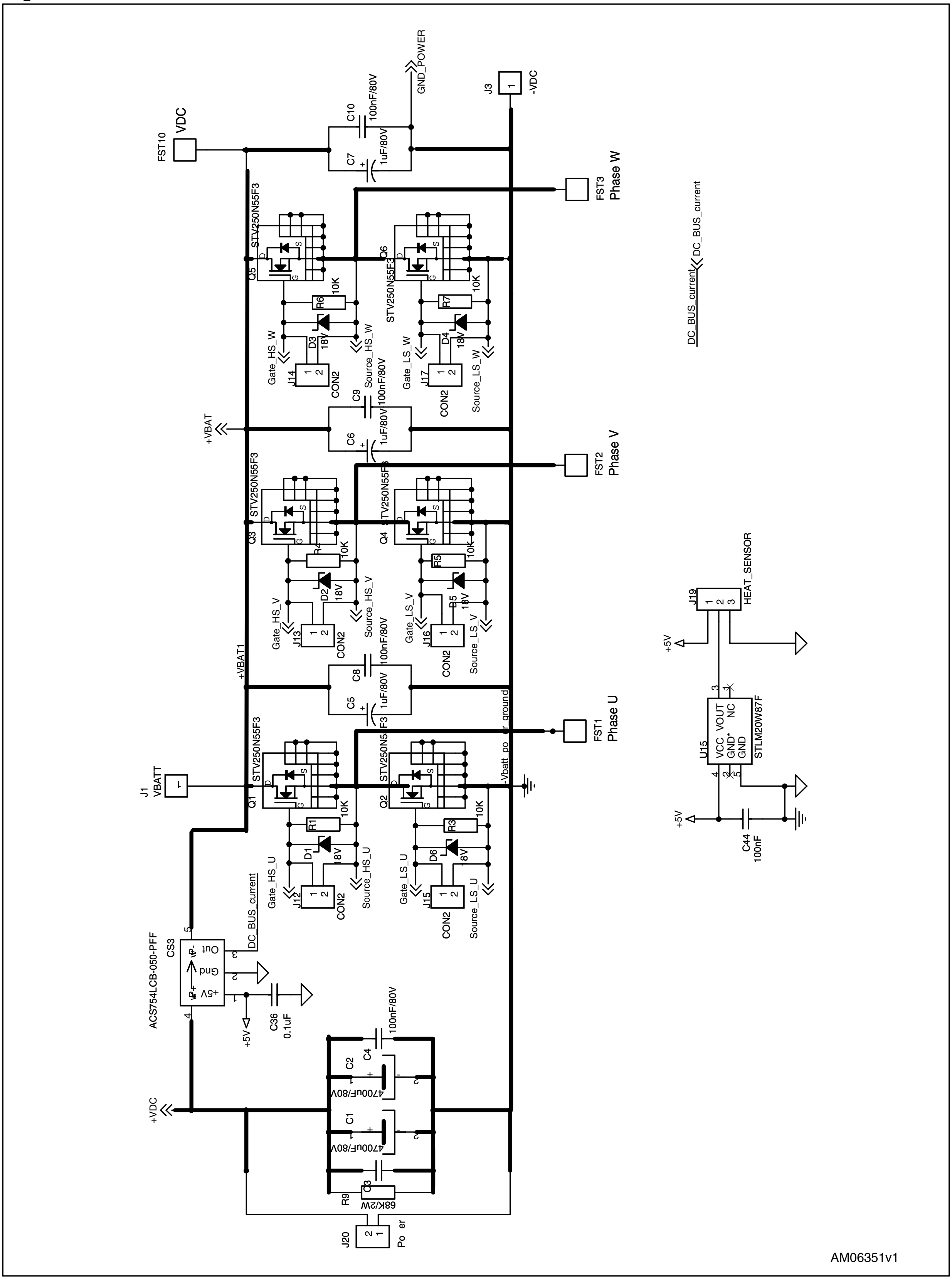


Figure 3. Power section schematic



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
08-Mar-2010	1	Initial release.